Release notes for ENDF/B Development n-006_C_012 evaluation

April 26, 2017

- `fudge-4.0` Warnings:

  1. Cross section does not match sum of linked reaction cross sections
     crossSectionSum label 0: total (Error # 0): CS Sum.

     ```
     WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 1.09%
     ```

  2. Cross section does not match sum of linked reaction cross sections
     crossSectionSum label 1: nonelastic (Error # 0): CS Sum.

     ```
     WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 71.65%
     ```

- `fudge-4.0` Errors:

  1. Calculated and tabulated Q values disagree.
     reaction label 14: n + H1 + B11 (Error # 0): Q mismatch

     ```
     WARNING: Calculated and tabulated Q-values disagree: -19023868.43674469 eV vs -1.5957e7 eV!
     ```

  2. Calculated and tabulated Q values disagree.
     reaction label 15: C13 + gamma (Error # 0): Q mismatch

     ```
     WARNING: Calculated and tabulated Q-values disagree: 1879338.656536102 eV vs 4946285. eV!
     ```

  3. Primary gamma energy at threshold should be $\leq$ available energy (depending on which discrete level it ends up in)
     reaction label 15: C13 + gamma / Product: gamma__a / Distribution: / uncorrelated - energy - primaryGamma: (Error # 0): primaryGammaEnergyTooLarge

     ```
     WARNING: Primary gamma energy 4946500.0 exceeds available energy by 100.004346697%
     ```

  4. Calculated and tabulated Q values disagree.
     reaction label 16: H1 + B12_s (Error # 0): Q mismatch

     ```
     WARNING: Calculated and tabulated Q-values disagree: -15653520.15122986 eV vs -1.2588e7 eV!
     ```

  5. Calculated and tabulated Q values disagree.
     reaction label 17: H2 + B11_s (Error # 0): Q mismatch

     ```
     WARNING: Calculated and tabulated Q-values disagree: -16799302.33580971 eV vs -1.3733e7 eV!
     ```

  6. Calculated and tabulated Q values disagree.
     reaction label 18: He4 + Be9_s (Error # 0): Q mismatch

     ```
     WARNING: Calculated and tabulated Q-values disagree: -8768213.377015114 eV vs -5.702e6 eV!
     ```

- `njoy2012` Warnings:

  1. This nuclide has no URR and NJOY is upset about it
     unresr...calculation of unresolved resonance cross sections (0): No URR

     ```
     ---message from unresr---mat  625 has no resonance parameters
                          copy as is to nout
     ```

1

2. This nuclide has no URR and NJOY is upset about it
   purr...probabalistic unresolved calculation (0): No URR

   ```
    ---message from purr---mat  625 has no resonance parameters
                          copy as is to nout
   ```

3. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
   groupr...compute self-shielded group-averaged cross-sections (0): GROUPR/conver (0)

   ```
    ---message from conver---cannot do complete particle production for mt= 28
                          only mf4/mf5 provided
   ```

4. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
   groupr...compute self-shielded group-averaged cross-sections (1): GROUPR/conver (0)

   ```
    ---message from conver---cannot do complete particle production for mt= 91
                          only mf4/mf5 provided
   ```

2